

ORDINANCE #2024-021

AMENDING ORDINANCE #2024-017 OF CHAPTER 220, "LAND USE DEVELOPMENT", BY AMENDING ARTICLE VIII, "SUBDIVISIONS SIGNS AND PERFORMANCE STANDARDS", SUBSECTIONS 220-147 through 220-158 ENTITLED "SCOPE AND PURPOSE OF STORMWATER MANAGEMENT REQUIREMENTS" OF THE REVISED CODE OF THE TOWNSHIP OF MARLBORO

WHEREAS, NJDEP has drafted an updated model stormwater ordinance which municipalities must adopt by July 18, 2024 to incorporate these updates; and

WHEREAS, NJDEP has now required that all major stormwater development projects include analysis using both current and projected rainfall rates; and

WHEREAS, NJDEP has now required that design engineer utilize the National Resource Conservation Service (NRCS) methodology to analyze and demonstrate compliance with applicable stormwater management standards; and

WHEREAS, the Township Engineer has reviewed the updated model ordinance and has made revisions to the Township Stormwater Management Ordinance at Chapter 220, Article VIII, Subsections 220-147 through 220-158 entitled "Scope and Purpose of Stormwater Management Requirements" in accordance with the recommended updates; and

WHEREAS, Runoff water from storms needs to be clean of debris and pollutants so that drinking water and waterways are clean for all which can be achieved by appropriate Stormwater Management; and

WHEREAS, the Mayor and Council have determined it is in the best interest of its residents to adopt the recommended updates to the stormwater management ordinance to better protect water quality by reducing pollution runoff through the implementation of required green infrastructure technologies;

NOW, THEREFORE, BE IT ORDAINED, by the governing body of the Township of Marlboro that Chapter 220, "Land Use Development", Article VIII, "Subdivision Signs and Performance Standards", subsection 220-147 through 220-158 entitled "Scope and purpose of stormwater management requirements" is hereby revised to read as follows:

§ 220-147 Scope and purpose of stormwater management requirements.

- A. Policy statement. Flood control, groundwater recharge, and pollutant reduction shall be achieved through the use of stormwater management measures, including green infrastructure Best Management Practices (GI BMPs) and nonstructural stormwater management strategies. GI BMPs and low impact development (LID) should be utilized to meet the goal of maintaining natural hydrology to reduce stormwater runoff volume, reduce erosion, encourage infiltration and groundwater recharge, and reduce pollution. GI BMPs and LID should be developed based upon physical site conditions and the origin, nature, and the anticipated quantity or amount of potential pollutants. Multiple stormwater management BMPs may be necessary to achieve the established performance standards for water quality, quantity, and groundwater recharge.
- B. Purpose. It is the purpose of §§ 220-147 through 220-158 to establish minimum stormwater management requirements and controls for major development, as defined in § 220-148.
- C. Applicability.
- (1) (1) Sections 220-147 through 220-158 shall be applicable to all site plans and subdivisions for the following major developments that require preliminary or final site plan or subdivision review:
 - (a) Nonresidential major developments; and
 - (b) Aspects of residential major developments that are not regulated by the Residential Site Improvement Standards at N.J.A.C. 5:21.
 - (2) Sections 220-147 through 220-158 shall also be applicable to all major developments undertaken by Township of Marlboro.
 - (3) An application required by ordinance pursuant to C(1) above that has been submitted prior to the adoption date of August 15, 2024, shall be subject to the stormwater management requirements in effect on 1 day prior to the August 15, 2024 adoption date of this ordinance.
 - (4) An application required by ordinance for approval pursuant to C(1) above that has been submitted on or after March 2, 2021, but prior to the adoption date of August 15, 2024

this ordinance, shall be subject to the stormwater management requirements in effect on 1 day prior to the August 15, 2024 adoption date of this ordinance}.

- (5) Notwithstanding any rule to the contrary, a major development for any public roadway or railroad project conducted by a public transportation entity that has determined a preferred alternative or reached an equivalent milestone before July 17, 2023, shall be subject to the stormwater management requirements in effect prior to July 17, 2023.

D. Compatibility with other permit and ordinance requirements. Development approvals issued for subdivisions and site plans pursuant to §§ 220-147 through 220-158 are to be considered an integral part of development approvals under the subdivision and site plan review process and do not relieve the applicant of the responsibility to secure required permits or approvals for activities regulated by any other applicable code, rule, act, or ordinance. In their interpretation and application, the provisions of §§ 220-147 through 220-158 shall be held to be the minimum requirements for the promotion of the public health, safety, and general welfare. Sections 220-147 through 220-158 are not intended to interfere with or annul any other ordinances, rule or regulation, statute, or other provision of law except that, where any provision of these sections imposes restrictions different from those imposed by any other ordinance, rule or regulation, or other provision of law, the more restrictive provisions or higher standards shall apply.

§ 220-148 Definitions related to stormwater management.

For the purpose of §§ 220-147 through 220-158, the following terms, phrases, words and their derivations shall have the meanings stated herein unless their use in the text of this Chapter clearly demonstrates a different meaning. When not inconsistent with the context, words used in the present tense include the future, words used in the plural number include the singular number, and words used in the singular number include the plural number. The word "shall" is always mandatory and not merely directory. The definitions below are the same as or based on the corresponding definitions in the Stormwater Management Rules at N.J.A.C. 7:8-1.2.

AGRICULTURAL DEVELOPMENT

Land uses normally associated with the production of food, fiber and livestock for sale. Such uses do not include the development of land for the processing or sale of food and the manufacturing of agriculturally related products.

CAFRA CENTERS, CORES OR NODES

The areas with boundaries incorporated by reference or revised by the Department in accordance with N.J.A.C. 7:7-13.16.

CAFRA PLANNING MAP

The map used by the Department to identify the location of Coastal Planning Areas, CAFRA centers, CAFRA cores, and CAFRA nodes. The CAFRA Planning Map is available on the Department's Geographic Information System (GIS).

COMMUNITY BASIN

An infiltration system, sand filter designed to infiltrate, standard constructed wetland, or wet pond, established in accordance with N.J.A.C. 7:8-4.2(c)14, that is designed and constructed in accordance with the New Jersey Stormwater Best Management Practices Manual, or an alternate design, approved in accordance with N.J.A.C. 7:8-5.2(g), for an infiltration system, sand filter designed to infiltrate, standard constructed wetland, or wet pond and that complies with the requirements of this chapter.

COMPACTION

The increase in soil bulk density.

CONTRIBUTORY DRAINAGE AREA

The area from which stormwater runoff drains to a stormwater management measure, not including the area of the stormwater management measure itself.

CORE

A pedestrian-oriented area of commercial and civic uses serving the surrounding municipality, generally including housing and access to public transportation.

COUNTY REVIEW AGENCY

An agency designated by the County Commissioners to review the Township of Marlboro's stormwater management plans and

implementing ordinance(s). The county review agency may either be:

A. A county planning agency; or

B. A county water resource association created under N.J.S.A. 58:16A-55.5, if the ordinance or resolution delegates authority to approve, conditionally approve, or disapprove municipal stormwater management plans and implementing ordinances.

DEPARTMENT

The New Jersey Department of Environmental Protection.

DESIGNATED CENTER

A State Development and Redevelopment Plan Center as designated by the State Planning Commission such as urban, regional, town, village, or hamlet.

DESIGN ENGINEER

A person professionally qualified and duly licensed in New Jersey to perform engineering services that may include, but not necessarily be limited to, development of project requirements, creation and development of project design and preparation of drawings and specifications.

DEVELOPMENT

The division of a parcel of land into two or more parcels, the construction, reconstruction, conversion, structural alteration, relocation or enlargement of any building or structure, any mining excavation or landfill, and any use or change in the use of any building or other structure, or land or extension of use of land, by any person, for which permission is required under the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq. In the case of development of agricultural lands, "development" means any activity that requires a state permit; any activity reviewed by the County Agricultural Board (CAB) and the State Agricultural Development Committee (SADC), and municipal review of any activity not exempted by the Right to Farm Act, N.J.S.A. 4:1C-1 et seq.

DISTURBANCE

The placement or reconstruction of impervious surface or motor vehicle surface, or exposure and/or movement of soil or bedrock

or clearing, cutting, or removing of vegetation. Milling and repaving is not considered disturbance for the purposes of this definition.

DRAINAGE AREA

A geographic area within which stormwater, sediments, or dissolved materials drain to a particular receiving water body or to a particular point along a receiving water body.

EMPOWERMENT NEIGHBORHOODS

Neighborhoods designated by the Urban Coordinating Council "in consultation and conjunction with" the New Jersey Redevelopment Authority pursuant to N.J.S.A 55:19-69.

ENVIRONMENTALLY CONSTRAINED AREA

The following areas where the physical alteration of the land is in some way restricted, either through regulation, easement, deed restriction or ownership such as: wetlands, floodplains, threatened and endangered species sites or designated habitats, and parks and preserves. Habitats of endangered or threatened species are identified using the Department's Landscape Project as approved by the Department's Endangered and Nongame Species Program.

ENVIRONMENTALLY CRITICAL AREA

An area or feature which is of significant environmental value, including but not limited to stream corridors; natural heritage priority sites; habitat of endangered or threatened species; large areas of contiguous open space or upland forest; steep slopes; and wellhead protection and groundwater recharge areas. Habitats of endangered or threatened species are identified using the Department's Landscape Project as approved by the Department's Endangered and Nongame Species Program.

EROSION

The detachment and movement of soil or rock fragments by water, wind, ice or gravity.

FLOOD HAZARD AREA

Area of potential risk due to sudden and temporary increase of surface water flow due to a storm event, typically, the one-hundred-year storm.

GREEN INFRASTRUCTURE

A stormwater management measure that manages stormwater close to its source by:

- (1) Treating stormwater runoff through infiltration into subsoil;
- (2) Treating stormwater runoff through filtration by vegetation or soil; or
- (3) Storing stormwater runoff for reuse.

HUC 14 OR "HYDROLOGIC UNIT CODE 14"

An area within which water drains to a particular receiving surface water body, also known as a subwatershed, which is identified by a 14-digit hydrologic unit boundary designation, delineated within New Jersey by the United States Geological Survey.

IMPERVIOUS SURFACE

A surface that has been covered with a layer of material so that it is highly resistant to infiltration by water.

INFILTRATION

The process by which water seeps into the soil from precipitation.

LEAD PLANNING AGENCY

One or more public entities having stormwater management planning authority designated by the regional stormwater management planning committee pursuant to N.J.A.C. 7:8-3.2, that serves as the primary committee representative.

MAJOR DEVELOPMENT

A. An individual "development," as well as multiple developments that individually or collectively result in:

- (1) The disturbance of one or more acres of land since February 2, 2004;
- (2) The creation of one-quarter acre or more of "regulated impervious surface" since February 2, 2004;

- (3) The creation of one-quarter acre or more of "regulated motor vehicle surface" since March 2, 2021 *{or the effective date of this ordinance, whichever is earlier}*; or
- (4) A combination of 2 and 3 above that totals an area of one-quarter acre or more. The same surface shall not be counted twice when determining if the combination area equals one-quarter acre or more.

B. Major development includes all developments that are part of a common plan of development or sale (for example, phased residential development) that collectively or individually meet any one or more of paragraphs 1, 2, 3, or 4 above. Projects undertaken by any government agency that otherwise meet the definition of "major development" but which do not require approval under the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq., are also considered "major development."

MITIGATION

An action by an applicant providing compensation or offset actions for on-site stormwater management requirements where the applicant has demonstrated the inability or impracticability of strict compliance with the stormwater management requirements set forth in N.J.A.C. 7:8, in an adopted regional stormwater management plan, or in 220-147 through 220-158, and has received a waiver from strict compliance from the municipality. Mitigation, for the purposes of §§ 220-147 through 220-158, includes both the mitigation plan, detailing how the project's applicant's failure to strictly comply will be compensated, and the implementation of the approved mitigation plan within the same HUC-14 subwatershed within which the subject project is proposed (if possible and practical), or a contribution of funding toward a regional stormwater management plan, or provision for equivalent treatment at an alternative location, or other equivalent water quality benefit.

MOTOR VEHICLE

Land vehicles propelled other than by muscular power, such as automobiles, motorcycles, autocycles, and low speed vehicles. For the purposes of this definition, motor vehicle does not include farm equipment, snowmobiles, all-terrain vehicles, motorized wheelchairs, go-carts, gas buggies, golf carts, ski-slope grooming machines, or vehicles that run only on rails or tracks.

MOTOR VEHICLE SURFACE

Any pervious or impervious surface that is intended to be used by "motor vehicles" and/or aircraft, and is directly exposed to precipitation including, but not limited to, driveways, parking areas, parking garages, roads, racetracks, and runways.

MUNICIPALITY

Marlboro Township.

NEW JERSEY STORMWATER BEST MANAGEMENT PRACTICES (BMP) MANUAL OR "BMP MANUAL"

The manual maintained by the Department providing, in part, design specifications, removal rates, calculation methods, and soil testing procedures approved by the Department as being capable of contributing to the achievement of the stormwater management standards specified in this chapter. The BMP Manual is periodically amended by the Department as necessary to provide design specifications on additional best management practices and new information on already included practices reflecting the best available current information regarding the particular practice and the Department's determination as to the ability of that best management practice to contribute to compliance with the standards contained in this chapter. Alternative stormwater management measures, removal rates, or calculation methods may be utilized, subject to any limitations specified in this chapter, provided the design engineer demonstrates to the municipality, in accordance with Section 220-150F of this ordinance and N.J.A.C. 7:8-5.2(g), that the proposed measure and its design will contribute to achievement of the design and performance standards established by this chapter.

NODE

An area designated by the State Planning Commission concentrating facilities and activities that are not organized in a compact form.

NUTRIENT

A chemical element or compound, such as nitrogen or phosphorus, which is essential to and promotes the development of organisms.

PERSON

Any individual, corporation, company, partnership, firm, association, the Township of Marlboro or political subdivision of this state subject to municipal jurisdiction pursuant to the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq.

POLLUTANT

Any dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, refuse, oil, grease, sewage sludge, munitions, chemical wastes, biological materials, medical wastes, radioactive substance (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. §§ 2011 et seq.)), thermal waste, wrecked or discarded equipment, rock, sand, cellar dirt, industrial, municipal, agricultural, and construction waste or runoff, or other residue discharged directly or indirectly to the land, ground waters or surface waters of the State, or to a domestic treatment works. Includes both hazardous and nonhazardous pollutants.

PUBLIC ROADWAY OR RAILROAD –

A pathway for use by motor vehicles or trains that is intended for public use and is constructed by, or on behalf of, a public transportation entity. A public roadway or railroad does not include a roadway or railroad constructed as part of a private development, regardless of whether the roadway or railroad is ultimately to be dedicated to and/or maintained by a governmental entity.

PUBLIC TRANSPORTATION ENTITY

A Federal, State, county, or municipal government, an independent State authority, or a statutorily authorized public-private partnership program pursuant to P.L. 2018, c. 90 (N.J.S.A. 40A:11-52 et seq.), that performs a public roadway or railroad project that includes new construction, expansion, reconstruction, or improvement of a public roadway or railroad.

RECHARGE

The volume of water from precipitation that infiltrates into the ground and is not evapotranspired.

REGULATED IMPERVIOUS SURFACE

A. Any of the following, alone or in combination:

- (1) A net increase of impervious surface;

- (2) The total area of impervious surface collected by a new stormwater conveyance system (for the purpose of this definition, a "new stormwater conveyance system" is a stormwater conveyance system that is constructed where one did not exist immediately prior to its construction or an existing system for which a new discharge location is created);
- (3) The total area of impervious surface proposed to be newly collected by an existing stormwater conveyance system; and/or
- (4) The total area of impervious surface collected by an existing stormwater conveyance system where the capacity of that conveyance system is increased.

REGULATED MOTOR VEHICLE SURFACE

A. Any of the following, alone or in combination:

- (1) The total area of motor vehicle surface that is currently receiving water;
- (2) A net increase in motor vehicle surface; and/or quality treatment either by vegetation or soil, by an existing stormwater management measure, or by treatment at a wastewater treatment plant, where the water quality treatment will be modified or removed.

SEDIMENT

Solid material, mineral or organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water or gravity as a product of erosion.

SITE

The lot or lots upon which a development is to occur or has occurred.

SOIL

All unconsolidated mineral and organic material of any origin.

SOLID AND FLOATABLE MATERIALS

Sediment, debris, trash, and other floating, suspended, or settleable solids.

STATE DEVELOPMENT AND REDEVELOPMENT PLAN METROPOLITAN PLANNING AREA (PA1)

An area delineated on the State Plan Policy Map and adopted by the State Planning Commission that is intended to be the focus for much of the state's future redevelopment and revitalization efforts.

STATE PLAN POLICY MAP

The geographic application of the State Development and Redevelopment Plan's goals and statewide policies, and the official map of these goals and policies.

STORMWATER

Water resulting from precipitation (including rain and snow) that runs off the land's surface, is transmitted to the subsurface, or is captured by separate storm sewers or other sewage or drainage facilities, or conveyed by snow removal equipment.

STORMWATER MANAGEMENT BMP

An excavation or embankment and related areas designed to retain stormwater runoff. A stormwater management BMP may either be normally dry (that is, a detention basin or infiltration system), retain water in a permanent pool (a retention basin), or be planted mainly with wetland vegetation (most constructed stormwater wetlands).

STORMWATER MANAGEMENT BASIN

An excavation or embankment and related areas designed to retain stormwater runoff. A stormwater management basin may either be normally dry (that is, a detention basin or infiltration basin), retain water in a permanent pool (a retention basin), or be planted mainly with wetland vegetation (most constructed stormwater wetlands).

STORMWATER MANAGEMENT MEASURE

Any structural or nonstructural strategy, practice, technology, process, program, or other method intended to control or reduce stormwater runoff and associated pollutants, or to induce or control the infiltration or groundwater recharge of stormwater or to eliminate illicit or illegal non-stormwater discharges into stormwater conveyances.

STORMWATER MANAGEMENT PLANNING AGENCY

A public body authorized by legislation to prepare stormwater management plans.

STORMWATER MANAGEMENT PLANNING AREA

The geographic area for which a stormwater management planning agency is authorized to prepare stormwater management plans, or a specific portion of that area identified in a stormwater management plan prepared by that agency.

STORMWATER RUNOFF

Water flow on the surface of the ground or in storm sewers, resulting from precipitation.

TIDAL FLOOD HAZARD AREA

A flood hazard area in which the flood elevation resulting from the two-, 10-, or 100-year storm, as applicable, is governed by tidal flooding from the Atlantic Ocean. Flooding in a tidal flood hazard area may be contributed to, or influenced by, stormwater runoff from inland areas, but the depth of flooding generated by the tidal rise and fall of the Atlantic Ocean is greater than flooding from any fluvial sources. In some situations, depending upon the extent of the storm surge from a particular storm event, a flood hazard area may be tidal in the 100-year storm, but fluvial in more frequent storm events.

TIME OF CONCENTRATION

The time it takes for runoff to travel from the hydraulically most distant point of the watershed to the point of interest within a watershed.

TOTAL SUSPENDED SOILS

The sum of dissolved and undissolved solids and particulate matter of a buoyancy and/or specific gravity that prohibits their settling in runoff.

URBAN COORDINATING COUNCIL EMPOWERMENT NEIGHBORHOOD

A neighborhood given priority access to State resources through the New Jersey Redevelopment Authority.

URBAN ENTERPRISE ZONES

A zone designated by the New Jersey Enterprise Zone Authority pursuant to the New Jersey Urban Enterprise Zones Act, N.J.S.A. 52:27H-60 et. seq.

URBAN REDEVELOPMENT AREA

A. Previously developed portions of areas:

- (1) Delineated on the State Plan Policy Map (SPPM) as the Metropolitan Planning Area (PA1), Designated Centers, Cores or Nodes;
- (2) Designated as CAFRA Centers, Cores or Nodes;
- (3) Designated as Urban Enterprise Zones; and
- (4) Designated as Urban Coordinating Council Empowerment Neighborhoods.

WATER CONTROL STRUCTURE

A structure within, or adjacent to, a water, which intentionally or coincidentally alters the hydraulic capacity, the flood elevation resulting from the two-, 10-, or 100-year storm, flood hazard area limit, and/or floodway limit of the water. Examples of a water control structure may include a bridge, culvert, dam, embankment, ford (if above grade), retaining wall, and weir.

WATERS OF THE STATE

The ocean and its estuaries, all springs, streams, wetlands, and bodies of surface or groundwater, whether natural or artificial, within the boundaries of the State of New Jersey or subject to its jurisdiction.

WETLANDS or WETLAND

An area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as "hydrophytic vegetation."

220-149 Design and performance standards for stormwater management measures.

- ##### A. Stormwater management measures for major development shall be designed to provide erosion control, groundwater recharge, stormwater runoff quantity control, and stormwater runoff

quality treatment as follows:

- (1) The minimum standards for erosion control are those established under the Soil and Sediment Control Act, N.J.S.A. 4:24-39 et seq., and implementing rules at N.J.A.C. 2:90.
- (2) The minimum standards for groundwater recharge, stormwater quality, and stormwater runoff quantity shall be met by incorporating green infrastructure.

B. The standards in §§ 220-147 through 220-158 apply only to new major development and are intended to minimize the impact of stormwater runoff on water quality and water quantity in receiving water bodies and maintain groundwater recharge. The standards do not apply to new major development to the extent that alternative design and performance standards are applicable under a regional stormwater management plan or Water Quality Management Plan adopted in accordance with Department rules.

§ 220-150 Stormwater management requirements for major development.

- A. The development shall incorporate a maintenance plan for the stormwater management measures incorporated into the design of a major development in accordance with § 220-156.
- B. Stormwater management measures shall avoid adverse impacts of concentrated flow on habitats for threatened and endangered species as documented in the Department's Landscape Project or Natural Heritage Database established under N.J.S.A. 13:1B-15.147 through 15.150, particularly *Helonias bullata* (swamp pink) and/or *Clemmys muhlenbergi* (bog turtle).
- C. The following linear development projects are exempt from the groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements of Subsections P and Q:
 - (1) The construction of an underground utility line, provided that the disturbed areas are revegetated upon completion;
 - (2) The construction of an aboveground utility line, provided that the existing conditions are maintained to the maximum extent practicable; and
 - (3) The construction of a public pedestrian access, such as

a sidewalk or trail with a maximum width of 14 feet, provided that the access is made of permeable material.

D. A waiver from strict compliance from the green infrastructure groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements of Subsections O, P and Q may be obtained for the enlargement of an existing public roadway, or the construction or enlargement of a public pedestrian access, provided that the following conditions are met:

- (1) The applicant demonstrates that there is a public need for the project that cannot be accomplished by any other means;
- (2) The applicant demonstrates through an alternatives analysis, that through the use of nonstructural and structural stormwater management strategies and measures, the option selected complies with the requirements of Subsections O, P and Q to the maximum extent practicable;
- (3) The applicant demonstrates that, in order to meet the requirements of Subsections O, P and Q, existing structures currently in use, such as homes and buildings, would need to be condemned; and
- (4) The applicant demonstrates that it does not own or have other rights to areas, including the potential to obtain through condemnation lands not falling under Subsection D(3) above within the upstream drainage area of the receiving stream, that would provide additional opportunities to mitigate the requirements of Subsections O, P and Q that were not achievable on site.

E. Tables 1 through 3 below summarize the ability of stormwater best management practices identified and described in the New Jersey Stormwater Best Management Practices Manual to satisfy the green infrastructure, groundwater recharge, stormwater runoff quality and stormwater runoff quantity standards specified in Subsections O, P, and Q. When designed in accordance with the most current version of the New Jersey Stormwater Best Management Practices Manual, the stormwater management measures found at N.J.A.C. 7:8-5.2 (f) Tables 5-1, 5-2 and 5-3 and listed below in Tables 1, 2 and 3 are presumed to be capable of providing stormwater controls for the design and performance standards as outlined in the tables below. Upon amendments of the New

Jersey Stormwater Best Management Practices to reflect additions or deletions of BMPs meeting these standards, or changes in the presumed performance of BMPs designed in accordance with the New Jersey Stormwater BMP Manual, the Department shall publish in the New Jersey Registers a notice of administrative change revising the applicable table. The most current version of the BMP Manual can be found on the Department's website at: https://njstormwater.org/bmp_manual2.htm

- F. Where the BMP tables in the NJ Stormwater Management Rule are different due to updates or amendments with the tables in this ordinance the BMP Tables in the Stormwater Management rule at N.J.A.C. 7:8-5.2(f) shall take precedence.

| <u>Table 1</u> <u>Green Infrastructure BMPs for Groundwater Recharge, Stormwater Runoff Quality, and/or Stormwater Runoff Quantity</u> | | | | |
|---|---|-----------------------------------|-----------------------------|---|
| <u>Best Management Practice</u> | <u>Stormwater Runoff Quality TSS Removal Rate (percent)</u> | <u>Stormwater Runoff Quantity</u> | <u>Groundwater Recharge</u> | <u>Minimum Separation from Seasonal High Water Table (feet)</u> |
| <u>Cistern</u> | <u>0</u> | <u>Yes</u> | <u>No</u> | <u>--</u> |
| <u>Dry Well</u> ^(a) | <u>0</u> | <u>No</u> | <u>Yes</u> | <u>2</u> |
| <u>Grass Swale</u> | <u>50 or less</u> | <u>No</u> | <u>No</u> | <u>2^(e)</u> <u>1^(f)</u> |
| <u>Green Roof</u> | <u>0</u> | <u>Yes</u> | <u>No</u> | <u>--</u> |
| <u>Manufactured Treatment Device</u> ^(a) | <u>50 or 80</u> | <u>No</u> | <u>No</u> | <u>Dependent upon the device</u> |

| | | | | |
|--|-----------------|------------|---|--|
| <u>Pervious Paving System</u> ^(a) | <u>80</u> | <u>Yes</u> | <u>Yes</u> ^(b) <u>No</u> ^(c) | <u>2</u> ^(b) <u>1</u> ^(c) |
| <u>Small-Scale Bioretention</u> | <u>80 or 90</u> | <u>Yes</u> | <u>Yes</u> ^(b) <u>No</u> ^(c) | <u>2</u> ^(b) <u>1</u> ^(c) |
| <u>Small-Scale Infiltration</u> | <u>80</u> | <u>Yes</u> | <u>Yes</u> | <u>2</u> |
| <u>Small-Scale Sand</u> | <u>80</u> | <u>Yes</u> | <u>Yes</u> | <u>2</u> |
| <u>Vegetative Filter Strip</u> | <u>60-80</u> | <u>No</u> | <u>No</u> | <u>--</u> |

(Notes corresponding to annotations ^(a) through ^(g) are found below Table 3)

| <u>Table 2</u> <u>Green Infrastructure BMPs for Stormwater Runoff Quantity</u> <u>(or for Groundwater Recharge and/or Stormwater Runoff Quality</u> <u>with a Waiver or Variance from N.J.A.C. 7:8-5.3)</u> | | | | |
|--|--|-----------------------------------|---|---|
| <u>Best Management Practice</u> | <u>Stormwater Runoff Quality</u> | <u>Stormwater Runoff Quantity</u> | <u>Groundwater Recharge</u> | <u>Minimum Separation from Seasonal High Water Table</u> <u>(feet)</u> |
| | <u>SS Removal Rate</u> <u>(percent)</u> | | | |
| <u>Bioretention System</u> | <u>80 or 90</u> | <u>Yes</u> | <u>Yes</u> ^(b) <u>No</u> ^(c) | <u>2</u> ^(b) <u>1</u> ^(c) |
| <u>Infiltration Basin</u> | <u>80</u> | <u>Yes</u> | <u>Yes</u> | <u>2</u> |

| | | | | |
|-------------------------------------|--------------|------------|------------|------------|
| <u>Sand Filter</u> ^(b) | <u>80</u> | <u>Yes</u> | <u>Yes</u> | <u>2</u> |
| <u>Standard Constructed Wetland</u> | <u>90</u> | <u>Yes</u> | <u>No</u> | <u>N/A</u> |
| <u>Wet Pond</u> ^(d) | <u>50-90</u> | <u>Yes</u> | <u>No</u> | <u>N/A</u> |

(Notes corresponding to annotations ^(b) through ^(d) are found below Table 3)

| <u>Table 3</u> <u>BMPs for Groundwater Recharge, Stormwater Runoff Quality, and/or Stormwater Runoff Quantity only with a Waiver or Variance from N.J.A.C. 7:8-5.3</u> | | | | |
|---|---|-----------------------------------|-----------------------------|---|
| <u>Best Management Practice</u> | <u>Stormwater Runoff Quality TSS Removal Rate (percent)</u> | <u>Stormwater Runoff Quantity</u> | <u>Groundwater Recharge</u> | <u>Minimum Separation from Seasonal High Water Table (feet)</u> |
| <u>Blue Roof</u> | <u>0</u> | <u>Yes</u> | <u>No</u> | <u>N/A</u> |
| <u>Extended Detention Basin</u> | <u>40-60</u> | <u>Yes</u> | <u>No</u> | <u>1</u> |
| <u>Manufactured Treatment Device</u> ^(h) | <u>50 or 80</u> | <u>No</u> | <u>No</u> | <u>Dependent upon the device</u> |
| <u>Sand Filter</u> ^(c) | <u>80</u> | <u>Yes</u> | <u>No</u> | <u>1</u> |
| <u>Subsurface Gravel Wetland</u> | <u>90</u> | <u>No</u> | <u>No</u> | <u>1</u> |
| <u>Wet Pond</u> | <u>50-90</u> | <u>Yes</u> | <u>No</u> | <u>N/A</u> |

Notes to Tables 1, 2, and 3:

- (a) subject to the applicable contributory drainage area limitation specified at Subsection O(2);
- (b) designed to infiltrate into the subsoil;
- (c) designed with underdrains;
- (d) designed to maintain at least a 10-foot wide area of native vegetation along at least 50 percent of the shoreline and to include a stormwater runoff retention component designed to capture stormwater runoff for beneficial reuse, such as irrigation;
- (e) designed with a slope of less than two percent;
- (f) designed with a slope of equal to or greater than two percent;
- (g) manufactured treatment devices that meet the definition of green infrastructure at Section 220-148;
- (h) manufactured treatment devices that do not meet the definition of green

G. An alternative stormwater management measure, alternative removal rate, and/or alternative method to calculate the removal rate may be used if the design engineer demonstrates the capability of the proposed alternative stormwater management measure and/or the validity of the alternative rate or method to the municipality. A copy of any approved alternative stormwater management measure, alternative removal rate, and/or alternative method to calculate the removal rate shall be provided to the Department in accordance with Section 220-153B. Alternative stormwater management measures may be used to satisfy the requirements at Subsection O only if the measures meet the definition of green infrastructure at Section 220-148. Alternative stormwater management measures that function in a similar manner to a BMP listed at Section O(2) are subject to the contributory drainage area limitation specified at Section O(2) for that similarly functioning BMP. Alternative stormwater management measures approved in accordance with this subsection that do not function in a similar manner to any BMP listed at Section O.2 shall have a contributory drainage area less than or equal to 2.5 acres, except for alternative stormwater management measures that function similarly to cisterns, grass swales, green roofs, standard constructed wetlands, vegetative filter strips, and wet ponds, which are not subject to a contributory drainage area limitation. Alternative measures that function similarly to standard constructed wetlands or wet ponds shall not be used for compliance with the stormwater runoff quality standard unless a variance in accordance with N.J.A.C. 7:8-4.6 or a waiver from strict compliance in accordance with Subsection D is granted from Subsection O.

- H. Whenever the stormwater management design includes one or more BMPs that will infiltrate stormwater into subsoil, the design engineer shall assess the hydraulic impact on the groundwater table and design the site, so as to avoid adverse hydraulic impacts. Potential adverse hydraulic impacts include, but are not limited to, exacerbating a naturally or seasonally high water table, so as to cause surficial ponding, flooding of basements, or interference with the proper operation of subsurface sewage disposal systems or other subsurface structures within the zone of influence of the groundwater mound, or interference with the proper functioning of the stormwater management measure itself.
- I. Design standards for stormwater management measures are as follows:
- (1) Stormwater management measures shall be designed to take into account the existing site conditions, including, but not limited to, environmentally critical areas; wetlands; flood-prone areas; slopes; depth to seasonal high water table; soil type, permeability, and texture; drainage area and drainage patterns; and the presence of solution-prone carbonate rocks (limestone);
 - (2) Stormwater management measures shall be designed to minimize maintenance, facilitate maintenance and repairs, and ensure proper functioning. Trash racks shall be installed at the intake to the outlet structure, as appropriate, and shall have parallel bars with one-inch spacing between the bars to the elevation of the water quality design storm. For elevations higher than the water quality design storm, the parallel bars at the outlet structure shall be spaced no greater than one-third the width of the diameter of the orifice or one-third the width of the weir, with a minimum spacing between bars of one inch and a maximum spacing between bars of six inches. In addition, the design of trash racks must comply with the requirements of Section 220-154B;
 - (3) Stormwater management measures shall be designed, constructed, and installed to be strong, durable, and corrosion resistant. Measures that are consistent with the relevant portions of the Residential Site Improvement Standards at N.J.A.C. 5:21-7.3, 7.4, and 7.5 shall be deemed to meet this requirement;
 - (4) Stormwater management BMPs shall be designed to meet the minimum safety standards for stormwater management BMPs at

Section 220-154; and

- (5) The size of the orifice at the intake to the outlet from the stormwater management BMP shall be a minimum of two and one-half inches in diameter.
- J. Manufactured treatment devices may be used to meet the requirements of this subchapter, provided the pollutant removal rates are verified by the New Jersey Corporation for Advanced Technology and certified by the Department. Manufactured treatment devices that do not meet the definition of green infrastructure at Section 220-148 may be used only under the circumstances described at Subsection O(4).
- K. Any application for a new agricultural development that meets the definition of major development at Section 220-148 shall be submitted to the Soil Conservation District for review and approval in accordance with the requirements at Subsections O, P, and Q and any applicable Soil Conservation District guidelines for stormwater runoff quantity and erosion control. For purposes of this subsection, "agricultural development" means land uses normally associated with the production of food, fiber, and livestock for sale. Such uses do not include the development of land for the processing or sale of food and the manufacture of agriculturally related products.
- L. If there is more than one drainage area, the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at Subsection P and Q shall be met in each drainage area, unless the runoff from the drainage areas converge onsite and no adverse environmental impact would occur as a result of compliance with any one or more of the individual standards being determined utilizing a weighted average of the results achieved for that individual standard across the affected drainage areas.
- M. Any stormwater management measure authorized under the municipal stormwater management plan or ordinance shall be reflected in a deed notice recorded in the Office of the County Clerk. A form of deed notice shall be submitted to the municipality for approval prior to filing. The deed notice shall contain a description of the stormwater management measure(s) used to meet the green infrastructure, groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at Subsection O, P and Q and shall identify the location of the stormwater management measure(s) in NAD 1983 State Plane New Jersey FIPS 2900 US Feet or Latitude and Longitude in decimal degrees. The deed

notice shall also reference the maintenance plan required to be recorded upon the deed pursuant to Section X.B.5. Prior to the commencement of construction, proof that the above required deed notice has been filed shall be submitted to the municipality. Proof that the required information has been recorded on the deed shall be in the form of either a copy of the complete recorded document or a receipt from the clerk or other proof of recordation provided by the recording office. However, if the initial proof provided to the municipality is not a copy of the complete recorded document, a copy of the complete recorded document shall be provided to the municipality within 180 calendar days of the authorization granted by the municipality.

N. A stormwater management measure approved under the municipal stormwater management plan or ordinance may be altered or replaced with the approval of the municipality, if the municipality determines that the proposed alteration or replacement meets the design and performance standards pursuant to Section 220-148 of this ordinance and provides the same level of stormwater management as the previously approved stormwater management measure that is being altered or replaced. If an alteration or replacement is approved, a revised deed notice shall be submitted to the municipality for approval and subsequently recorded with the Office of the County Clerk and shall contain a description and location of the stormwater management measure, as well as reference to the maintenance plan, in accordance with (M) above. Prior to the commencement of construction, proof that the above required deed notice has been filed shall be submitted to the municipality in accordance with (M) above.

O. Green Infrastructure Standards

(1) This subsection specifies the types of green infrastructure BMPs that may be used to satisfy the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards.

(2) To satisfy the groundwater recharge and stormwater runoff quality standards at Subsection P and Q, the design engineer shall utilize green infrastructure BMPs identified in Table 1 at Subsection F and/or an alternative stormwater management measure approved in accordance with Subsection G. The following green infrastructure BMPs are subject to the following maximum contributory drainage area limitations:

| <u>Best Management Practice</u> | <u>Maximum Contributory Drainage Area</u> |
|---|---|
| <u>Dry Well</u> | <u>1 acre</u> |
| <u>Manufactured Treatment Device</u> | <u>2.5 acres</u> |
| <u>Pervious Pavement Systems</u> | <u>Area of additional inflow cannot exceed three times the area occupied by the BMP</u> |
| <u>Small-scale Bioretention Systems</u> | <u>2.5 acres</u> |
| <u>Small-scale Infiltration Basin</u> | <u>2.5 acres</u> |
| <u>Small-scale Sand Filter</u> | <u>2.5 acres</u> |

- (3) To satisfy the stormwater runoff quantity standards at Subsection Q, the design engineer shall utilize BMPs from Table 1 or from Table 2 and/or an alternative stormwater management measure approved in accordance with Subsection G.
- (4) If a variance in accordance with N.J.A.C. 7:8-4.6 or a waiver from strict compliance in accordance with Subsection D is granted from the requirements of this subsection, then BMPs from Table 1, 2, or 3, and/or an alternative stormwater management measure approved in accordance with Subsection G may be used to meet the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at Subsection P and Q.
- (5) For separate or combined storm sewer improvement projects, such as sewer separation, undertaken by a government agency or public utility (for example, a sewerage company), the requirements of this subsection shall only apply to areas owned in fee simple by the government agency or utility, and areas within a right-of-way or easement held or controlled by the government agency or utility; the entity shall not be required to obtain additional property or property rights to fully satisfy the requirements of this subsection. Regardless of the amount of area of a separate or combined storm sewer improvement project subject to the green infrastructure requirements

of this subsection, each project shall fully comply with the applicable groundwater recharge, stormwater runoff quality control, and stormwater runoff quantity standards at Subsection P and Q, unless the project is granted a waiver from strict compliance in accordance with Subsection D.

P. Stormwater Runoff Quality Standards.

- (1) This subsection contains the minimum design and performance standards to control stormwater runoff quality impacts of major development. Stormwater runoff quality standards are applicable when the major development results in an increase of one-quarter acre or more of regulated motor vehicle surface.
- (2) Stormwater management measures shall be designed to reduce the post-construction load of total suspended solids (TSS) in stormwater runoff generated from the water quality design storm as follows:
 - (a) Eighty percent TSS removal of the anticipated load, expressed as an annual average shall be achieved for the stormwater runoff from the net increase of motor vehicle surface.
 - (b) If the surface is considered regulated motor vehicle surface because the water quality treatment for an area of motor vehicle surface that is currently receiving water quality treatment either by vegetation or soil, by an existing stormwater management measure, or by treatment at a wastewater treatment plant is to be modified or removed, the project shall maintain or increase the existing TSS removal of the anticipated load expressed as an annual average.
- (3) The requirement to reduce TSS does not apply to any stormwater runoff in a discharge regulated under a numeric effluent limitation for TSS imposed under the New Jersey Pollutant Discharge Elimination System (NJPDES) rules, N.J.A.C. 7:14A, or in a discharge specifically exempt under a NJPDES permit from this requirement. Every major development, including any that discharge into a combined sewer system, shall comply with 2 above, unless the major development is itself subject to a NJPDES permit with a numeric effluent limitation for TSS or the NJPDES permit to which the major development is subject exempts the development from a numeric effluent limitation for TSS.

- (4) The water quality design storm is 1.25 inches of rainfall in two hours. Water quality calculations shall take into account the distribution of rain from the water quality design storm, as reflected in Table 4, below. The calculation of the volume of runoff may take into account the implementation of stormwater management measures.

(5) Table 4 - Water Quality Design Storm Distribution

| Time (Minutes) | Cumulative Rainfall (Inches) | Time (Minutes) | Cumulative Rainfall (Inches) | Time (Minutes) | Cumulative Rainfall (Inches) |
|-------------------|------------------------------------|-------------------|------------------------------------|-------------------|------------------------------------|
| 1 | 0.00166 | 41 | 0.1728 | 81 | 1.0906 |
| 2 | 0.00332 | 42 | 0.1796 | 82 | 1.0972 |
| 3 | 0.00498 | 43 | 0.1864 | 83 | 1.1038 |
| 4 | 0.00664 | 44 | 0.1932 | 84 | 1.1104 |
| 5 | 0.00830 | 45 | 0.2000 | 85 | 1.1170 |
| 6 | 0.00996 | 46 | 0.2117 | 86 | 1.1236 |
| 7 | 0.01162 | 47 | 0.2233 | 87 | 1.1302 |
| 8 | 0.01328 | 48 | 0.2350 | 88 | 1.1368 |
| 9 | 0.01494 | 49 | 0.2466 | 89 | 1.1434 |
| 10 | 0.01660 | 50 | 0.2583 | 90 | 1.1500 |
| 11 | 0.01828 | 51 | 0.2783 | 91 | 1.1550 |
| 12 | 0.01996 | 52 | 0.2983 | 92 | 1.1600 |
| 13 | 0.02164 | 53 | 0.3183 | 93 | 1.1650 |
| 14 | 0.02332 | 54 | 0.3383 | 94 | 1.1700 |
| 15 | 0.02500 | 55 | 0.3583 | 95 | 1.1750 |
| 16 | 0.03000 | 56 | 0.4116 | 96 | 1.1800 |
| 17 | 0.03500 | 57 | 0.4650 | 97 | 1.1850 |
| 18 | 0.04000 | 58 | 0.5183 | 98 | 1.1900 |
| 19 | 0.04500 | 59 | 0.5717 | 99 | 1.1950 |
| 20 | 0.05000 | 60 | 0.6250 | 100 | 1.2000 |
| 21 | 0.05500 | 61 | 0.6783 | 101 | 1.2050 |
| 22 | 0.06000 | 62 | 0.7317 | 102 | 1.2100 |
| 23 | 0.06500 | 63 | 0.7850 | 103 | 1.2150 |
| 24 | 0.07000 | 64 | 0.8384 | 104 | 1.2200 |
| 25 | 0.07500 | 65 | 0.8917 | 105 | 1.2250 |
| 26 | 0.08000 | 66 | 0.9117 | 106 | 1.2267 |
| 27 | 0.08500 | 67 | 0.9317 | 107 | 1.2284 |
| 28 | 0.09000 | 68 | 0.9517 | 108 | 1.2300 |
| 29 | 0.09500 | 69 | 0.9717 | 109 | 1.2317 |
| 30 | 0.10000 | 70 | 0.9917 | 110 | 1.2334 |
| 31 | 0.10660 | 71 | 1.0034 | 111 | 1.2351 |
| 32 | 0.11320 | 72 | 1.0150 | 112 | 1.2367 |
| 33 | 0.11980 | 73 | 1.0267 | 113 | 1.2384 |
| 34 | 0.12640 | 74 | 1.0383 | 114 | 1.2400 |
| 35 | 0.13300 | 75 | 1.0500 | 115 | 1.2417 |
| 36 | 0.13960 | 76 | 1.0568 | 116 | 1.2434 |
| 37 | 0.14620 | 77 | 1.0636 | 117 | 1.2450 |
| 38 | 0.15280 | 78 | 1.0704 | 118 | 1.2467 |
| 39 | 0.15940 | 79 | 1.0772 | 119 | 1.2483 |
| 40 | 0.16600 | 80 | 1.0840 | 120 | 1.2500 |

(6) If more than one BMP in series is necessary to achieve the required eighty-percent TSS reduction for a site, the applicant shall utilize the following formula to calculate TSS reduction:

$$R = A + B - (AB)/100$$

Where:

R = total TSS percent load removal from application of both BMPs

A = the TSS percent removal rate applicable to the first BMP

B = the TSS percent removal rate applicable to the second BMP

- (7) Stormwater management measures shall also be designed to reduce, to the maximum extent feasible, the post construction nutrient load of the anticipated load from the developed site in stormwater runoff generated from the water quality design storm. In achieving reduction of nutrients to the maximum extent feasible, the design of the site shall include green infrastructure BMP's that optimize nutrient removal while still achieving the performance standards in Subsections P and Q.
- (8) In accordance with the definition of "FW1" at N.J.A.C. 7:9B-1.4, stormwater management measures shall be designed to prevent any increase in stormwater runoff to waters classified as FW1.
- (9) The Flood Hazard Area Control Act Rules at N.J.A.C. 7:13-4.1(c)1 establish 300-foot riparian zones along Category One waters, as designated in the Surface Water Quality Standards at N.J.A.C. 7:9B, and certain upstream tributaries to Category One waters. A person shall not undertake a major development that is located within or discharges into a 300-foot riparian zone without prior authorization from the Department under N.J.A.C. 7:13.
- (10) Pursuant to the Flood Hazard Area Control Act Rules at N.J.A.C. 7:13-11.2(j)3.i, runoff from the water quality design storm that is discharged within a 300-foot riparian zone shall be treated in accordance with this subsection to reduce the post-construction load of total suspended solids by 95 percent of the anticipated load from the developed site, expressed as an annual average.
- (10) The stormwater runoff quality standards do not apply to the construction of one individual single-family dwelling, provided that it is not part of a larger development or subdivision that has received preliminary or final site plan approval prior to December 3, 2018, and that the motor vehicle

surfaces are made of permeable material(s) such as gravel, dirt, and/or shells.

Q. Erosion control, groundwater recharge and Stormwater runoff quantity standards.

(1) This subsection contains minimum design and performance standards to control erosion, encourage and control infiltration and groundwater recharge, and control stormwater runoff quantity impacts of major development.

(a) The minimum design and performance standards for erosion control are those established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., and implementing rules.

(b) The minimum design and performance standards for groundwater recharge are as follows:

[1] The design engineer shall, using the assumptions and factors for stormwater runoff and groundwater recharge calculations at § 220-151, either:

[a] Demonstrate through hydrologic and hydraulic analysis that the site and its stormwater management measures maintain 100% of the average annual preconstruction groundwater recharge volume for the site; or

[b] Demonstrate through hydrologic and hydraulic analysis that the increase of stormwater runoff volume from preconstruction to post construction for the projected two-year storm, as defined and determined pursuant to Section 220-151E of this ordinance, is infiltrated.

[2] This groundwater recharge requirement does not apply to projects within the urban redevelopment area, or to projects subject to Subsection Q(1)(b)[3] below.

[3] The following types of stormwater shall not be recharged:

[a] Stormwater from areas of high pollutant loading. High pollutant loading areas are areas in industrial and commercial developments where solvents and/or petroleum products are

loaded/unloaded, stored, or applied; areas where pesticides are loaded/unloaded or stored; areas where hazardous materials are expected to be present in greater than reportable quantities, as defined by the United States Environmental Protection Agency (EPA) at 40 CFR 302.4; areas where recharge would be inconsistent with Department-approved remedial action work plan approved pursuant to the Administrative Requirements for the Remediation of Contaminated Sites rules, N.J.A.C. 7:26C, or Department landfill closure plan; and areas with high risks for spills of toxic materials, such as gas stations and vehicle maintenance facilities; and

[b] Industrial stormwater exposed to source material. "Source material" means any material(s) or machinery, located at an industrial facility, that is directly or indirectly related to process, manufacturing or other industrial activities, which could be a source of pollutants in any industrial stormwater discharge to groundwater. Source materials include, but are not limited to, raw materials; intermediate products; final products; waste materials; by-products; industrial machinery and fuels, and lubricants, solvents, and detergents that are related to process, manufacturing, or other industrial activities that are exposed to stormwater.

[4] The design engineer shall assess the hydraulic impact on the groundwater table and design the site so as to avoid adverse hydraulic impacts. Potential adverse hydraulic impacts include, but are not limited to, exacerbating a naturally or seasonally high water table so as to cause surficial ponding, flooding of basements, or interference with the proper operation of subsurface sewage disposal systems and other subsurface structures in the vicinity or down gradient of the groundwater recharge area.

(c) In order to control stormwater runoff quantity impacts, the design engineer shall, using the assumptions and factors for stormwater runoff calculations at § 220-151, complete one of the

following:

- [1] Demonstrate through hydrologic and hydraulic analysis that for stormwater leaving the site, post-construction runoff hydrographs for the current and projected two-, ten-, and 100-year storm events, as defined and determined in Section 220-151D and Section 220-151E, respectively, of this ordinance, do not exceed, at any point in time, the pre-construction runoff hydrographs for the same storm events;
 - [2] Demonstrate through hydrologic and hydraulic analysis that there is no increase, as compared to the preconstruction condition, in the peak runoff rates of stormwater leaving the site for the current and projected two-, ten-, and 100-year storm events, as defined and determined in Section 220-151D and Section 220-151E, respectively, of this ordinance, and that the increased volume or change in timing of stormwater runoff will not increase flood damage at or downstream of the site. This analysis shall include the analysis of impacts of existing land uses and projected land uses assuming full development under existing zoning and land use ordinances in the drainage area; or
 - [3] Design stormwater management measures so that the post construction peak runoff rates for the current and projected two-, ten-, and 100-year storm events, as defined and determined in Section 220-151D and Section 220-151E, respectively, of this ordinance, are 50%, 75% and 80%, respectively, of the preconstruction peak runoff rates. The percentages apply only to the post construction stormwater runoff that is attributable to the portion of the site on which the proposed development or project is to be constructed. The percentages shall not be applied to post construction stormwater runoff ~~into~~ within tidal flood hazard areas if the design engineer demonstrates through hydrologic and hydraulic analysis that the increased volume, change in timing, or increased rate of stormwater runoff will not increase flood damages below the point of discharge;
- (d) The stormwater runoff quantity standards shall be applied at the site's boundary to each abutting lot, roadway, watercourse, or receiving storm sewer system.

(2) Any application for a new agricultural development that meets the definition of major development at § 220-148 shall be submitted to the Freehold Soils Conservation District (FSCD) for review and approval in accordance with the requirements of this section and any applicable FSCD guidelines for stormwater runoff quantity and erosion control.

§ 220-151 Calculation of stormwater runoff and groundwater recharge.

A. Stormwater runoff shall be calculated in accordance with the following:

(1) The design engineer shall calculate runoff using the following methods:

(a) The USDA Natural Resources Conservation Service (NRCS) methodology, including the NRCS Runoff Equation and Dimensionless Unit Hydrograph, as described in the NRCS National Engineering Handbook Section 4 - Hydrology and Technical Release 55 - Urban Hydrology for Small Watersheds; or in Chapters 7, 9, 10, 15 and 16 Part 630, Hydrology National Engineering Handbook, incorporated herein by reference as amended and supplemented. This methodology is additionally described in Technical Release 55 - Urban Hydrology for Small Watersheds (TR-55), dated June 1986, incorporated herein by reference as amended and supplemented. Information regarding the methodology is available from the Natural Resources Conservation Service website at:

<https://directives.sc.egov.usda.gov/viewerFS.aspx?hid=21422>, or at United States Department of Agriculture Natural Resources Conservation Service, New Jersey State Office.

(2) For the purpose of calculating curve numbers and groundwater recharge, there is a presumption that the preconstruction condition of a site or portion thereof is a wooded land use with good hydrologic condition. The term "curve number" applies to the NRCS methodology at Subsection A(1)(a). A curve number or a groundwater recharge land cover for an existing condition may be used on all or a portion of the site if the design engineer verifies that the hydrologic condition has existed on the site or portion of the site for at least five years without interruption prior to the time of application. If more than one land cover has existed on the site during the five years

immediately prior to the time of application, the land cover with the lowest runoff potential shall be used for the computations. In addition, there is the presumption that the site is in good hydrologic condition (if the land use type is pasture, lawn, or park), with good cover (if the land use type is woods), or with good hydrologic condition and conservation treatment (if the land use type is cultivation).

- (3) In computing preconstruction stormwater runoff, the design engineer shall account for all significant land features and structures, such as ponds, wetlands, depressions, hedgerows, or culverts, that may reduce preconstruction stormwater runoff rates and volumes.
- (4) In computing stormwater runoff from all design storms, the design engineer shall consider the relative stormwater runoff rates and/or volumes of pervious and impervious surfaces separately to accurately compute the rates and volume of stormwater runoff from the site. To calculate runoff from unconnected impervious cover, urban impervious area modifications as described in the NRCS Technical Release 55 - Urban Hydrology for Small Watersheds and other methods may be employed.
- (5) If the invert of the outlet structure of a stormwater management measure is below the flood hazard design flood elevation as defined at N.J.A.C. 7:13, the design engineer shall take into account the effects of tailwater in the design of structural stormwater management measures.

B. Groundwater recharge may be calculated in accordance with the following: The New Jersey Geological Survey Report GSR-32, A Method for Evaluating Ground- Water Recharge Areas in New Jersey, incorporated herein by reference as amended and supplemented. Information regarding the methodology is available from the New Jersey Stormwater Best Management Practices Manual; at the New Jersey Geological Survey website at: <https://www.nj.gov/dep/njgs/pricelst/gsreport/gsr32.pdf>, or at New Jersey Geological and Water Survey, 29 Arctic Parkway, PO Box 420 Mail Code 29-01, Trenton, New Jersey 08625-0420.

C. Designs of stormwater conduit systems shall utilize the twenty-five-year rainfall in accordance with § 220-151D(1) below.

D. The precipitation depths of the current two-, 10-, and 100-year storm events shall be determined by multiplying the values determined in accordance with items 1 and 2 below:

- (1) The applicant shall utilize the National Oceanographic and Atmospheric Administration (NOAA), National Weather Service's Atlas 14 Point Precipitation Frequency Estimates: NJ, in accordance with the location(s) of the drainage area(s) of the site. This data is available at https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=nj; and
- (2) The applicant shall utilize Table 5: Current Precipitation Adjustment Factors below, which sets forth the applicable multiplier for the drainage area(s) of the site, in accordance with the county or counties where the drainage area(s) of the site is located. Where the major development lies in more than one county, the precipitation values shall be adjusted according to the percentage of the drainage area in each county. Alternately, separate rainfall totals can be developed for each county using the values in the table below.

Table 5: Current Precipitation Adjustment Factors

| County | Current Precipitation Adjustment Factors | | |
|-----------|--|----------------------|-----------------------|
| | 2-year Design Storm | 10-year Design Storm | 100-year Design Storm |
| Middlesex | 1.00 | 1.01 | 1.03 |
| Monmouth | 1.00 | 1.01 | 1.02 |

- E. Table 6: Future Precipitation Change Factors provided below sets forth the change factors to be used in determining the projected two-, 10-, and 100-year storm events for use in this chapter, which are organized alphabetically by county. The precipitation depth of the projected two-, 10-, and 100-year storm events of a site shall be determined by multiplying the precipitation depth of the two-, 10-, and 100-year storm events determined from the National Weather Service's Atlas 14 Point Precipitation Frequency Estimates pursuant to (c)1 above, by the change factor in the table below, in accordance with the county or counties where the drainage area(s) of the site is located. Where the major development and/or its drainage area lies in more than one county, the precipitation values shall be adjusted according to the percentage of the drainage area in each county. Alternately, separate rainfall totals can be developed for each county using the values in the table below.

Table 6: Future Precipitation Change Factors

| County | Future Precipitation Change Factors | | |
|-----------|-------------------------------------|-------------------------|--------------------------|
| | 2-year Design Storm | 10-year Design Storm | 100-year Design Storm |
| Middlesex | 1.19 | 1.21 | 1.33 |
| Monmouth | 1.19 | 1.19 | 1.26 |

§ 220-152 Standards for structural management measures.

A. Stormwater management measure guidelines are available in the New Jersey Stormwater Best Management Practices Manual. Other stormwater management measures may be utilized provided the design engineer demonstrates that the proposed measure and its design will accomplish the required water quantity, groundwater recharge and water quality design and performance standards established by § 220-150.

B. Manufactured treatment devices may be used to meet the requirements of § 220-150, provided the pollutant removal rates are verified by the New Jersey Corporation for Advanced Technology and certified by the Department.

C. Standards for stormwater collection systems.

(1) Velocities in closed conduits at design flow shall be at least two feet per second but not more than 10 feet per second.

(2) No pipe size in the storm drainage system shall be less than 15 inches in diameter.

(3) All discharge pipes shall terminate with a precast concrete flared end section or a cast-in-place concrete headwall with or without wingwalls as conditions dictate.

(4) The spacing of inlets shall be such that surface water shall not flow for more than 500 feet or the quantity of water is such that it causes ponding of water deeper than two inches at Type B and Type E inlets, whichever is the lesser distance. If, due to the slope of the approach prior to the inlet, 80% of the stormwater does not enter the inlet, decreased spacing and depth of water permissible shall be required. Sufficient inlets will be placed to eliminate any flow exceeding two cubic feet per second across any roadway intersection or pedestrian crosswalk.

(5) Dished gutters shall be permitted at any street intersection on rural and local streets and at the intersection of rural and local streets with minor collector streets and at the intersection of minor collector streets with major collector streets where the street of the lower classification is to be officially designated and signed as a stop street. In such cases, the dished gutter shall cross only the street of the lower classification. At the intersections of primary and secondary arterial streets and major collector streets, sufficient catch basins, at the discretion of the reviewing agency, shall be installed at each street intersection to avoid gutter overflow and at low points in the street grade, and dished gutters shall not be permitted.

(6) Manhole spacing shall increase with pipe size. The maximum spacing shall be 500 feet for 15 to 18 inches; 600 feet for 21 to 36 inches; and 700 feet for 42 inches and greater.

§ 220-152.1 Construction standards for pipe.

A. Storm sewer.

(1) Materials used in the construction of storm sewers shall be constructed of reinforced concrete, ductile iron, corrugated aluminum or corrugated steel unless site and other conditions dictate otherwise. Reinforced concrete pipe shall be used unless the applicant can demonstrate that the use of other materials will be more beneficial due to the proposed installation. Cost will not be a consideration in this analysis. Specifications referred to, such as American Standards Association, American Society for Testing and Materials, American Water Works Association, etc., should be the latest revision.

(2) Reinforced concrete pipe.

(a) Circular reinforced concrete pipe and fittings shall meet the requirements of ASTM C-76.

(b) Elliptical reinforced concrete pipe shall meet the requirements of ASTM C-507.

(c) Joint design and joint material for circular pipe shall conform to ASTM C-443.

(d) Joints for elliptical pipe shall be bell and spigot or tongue and groove, sealed with butyl, rubber tape or external sealing bands conforming to ASTM C-877.

- (e) All pipe shall be Class III unless a stronger pipe (i.e., higher class) is indicated to be necessary.
- (f) The minimum depth of cover over the concrete pipe shall be as designated by the American Concrete Pipe Association.
- (3) Ductile iron pipe. Ductile iron pipe shall be centrifugally cast in metal or sand-lined molds to ANSI A21.51-1976 (AWWA C151-76). The joints shall conform to AWWA C111. Pipe shall be furnished with flanges where connections to flange fittings are required. Pipe should be Class 50 (minimum). The outside of the pipe should be coated with a uniform thickness of hot-applied coal tar coating and the inside lined cement in accordance with AWWA C104. Ductile iron pipe shall be installed with Class C ordinary bedding.
- (4) Corrugated aluminum pipe. Within the public right-of-way and where severe topographic conditions or the desire to minimize the destruction of trees and vegetation exist, corrugated aluminum pipe, pipe arch or helical corrugated pipe may be used. The material shall comply with the Standard Specifications for Corrugated Aluminum Alloy Culvert and Under Drain AASHTO Designation M196 or the Standard Specification for Aluminum Alloy Helical Pipe AASHTO Designation M-211. The minimum thickness of the aluminum pipe to be used shall be:
 - (a) Less than twenty-four-inch diameter or equivalent, 0.075 inch (fourteen-gauge).
 - (b) Twenty-four-inch diameter and less than forty-eight-inch diameter or equivalent, 0.105 inch (twelve-gauge).
 - (c) Forty-eight-inch but less than seventy-two-inch diameter or equivalent, 0.135 inch (ten-gauge).
 - (d) Seventy-two-inch diameter or equivalent and larger, 0.164 inch (eight-gauge).
- (5) Corrugated steel pipe. Corrugated steel pipe may be used in place of corrugated aluminum and shall meet the requirements of AASHTO Specification M36. Coupling bands and special sections shall also conform to AASHTO M-36. All corrugated steel pipe shall be bituminous coated in accordance with AASHTO M-190, Type A minimum.
- (6) Pipe bedding shall be provided as specified in Design and Construction of Sanitary and Storm Sewers, ASCE Manuals and Reports on Engineering Practice Number 37, prepared by A Joint

Committee of the Society of Civil Engineers and the Water Pollution Control Federation, New York, 1969.

B. Inlets, catch basins and manholes.

- (1) Inlets, catch basins and manholes shall be designed in accordance with State Highway Department Standard Plans and Specifications. Frames shall be Campbell Foundry Company Pattern Number 2541, 2548, with eight-inch curb face, and 3432, 3440, for Type E inlets, or approved equal. All grates are to be bicycle grates.
- (2) Manholes and catch basins shall be precast concrete, brick or concrete block, coated with two coats of portland cement mortar.
- (3) If precast manhole barrels and cones are used, they shall conform to ASTM Specification C-473 with round rubber gasketed joints, conforming to ASTM Specification C-923. Maximum absorption shall be 8% in accordance with ASTM Specification C-478, Method A.
- (4) If precast manholes are utilized, the top riser section shall terminate less than one foot below the finished grade and the manhole cover shall be flush with the finished grade.
- (5) Manhole frames and covers shall be of cast iron conforming to ASTM Specification A-48 Class 30 and be suitable for H-20 loading capacity. All manhole covers in rights-of-way or in remote areas shall be provided with a locking device. The letters "Year 20 ____" and the words "STORM SEWER" shall be cast integrally in the cover.

C. Principal outlet structures.

- (1) Outlet structures should be designed to facilitate outlet operation and maintenance as the water level rises and to permit clearing either during or after a storm. Structural support members, steps, rungs or ladders should be provided to allow easy escape opportunities for a child or an adult without having these support members, ladders, etc., impede the clearing of trash from the outlet structure or the upward movement of trash as the water level rises.
- (2) The use of thin metal plates for trash rack bars, hand-hold supports, sharp crested weirs or orifices are prohibited because of the potential for accidents. Wire mesh fabric is similarly prohibited due to its poor suitability for trash

clearance.

- (3) Any outlet protective facility should have lockable hinged connections providing adequate access to thoroughly clean the area enclosed by the structure and to facilitate removal of accumulated debris and sediment around the outlet structure.
- (4) All outlet structures shall be structurally sound and shall be designed to withstand, without failure or permanent deformation, all structural loads, hydrostatic, dynamic or otherwise, which impact upon it during the design life of the installation. They shall be maintenance free to the maximum extent possible.

D. Solids and Floatable Materials Control Standards

(1) Site design features identified under Section 220-150F, or alternative designs in accordance with Section 220-150G, to prevent discharge of trash and debris from drainage systems shall comply with the following standard to control passage of solid and floatable materials through storm drain inlets. For purposes of this paragraph, "solid and floatable materials" means sediment, debris, trash, and other floating, suspended, or settleable solids. For exemptions to this standard see Subsection (b) below.

(a) Design engineers shall use one of the following grates whenever they use a grate in pavement or another ground surface to collect stormwater from that surface into a storm drain or surface water body under that grate:

[1] The New Jersey Department of Transportation (NJDOT) bicycle safe grate, which is described in Chapter 2.4 of the NJDOT Bicycle Compatible Roadways and Bikeways Planning and Design Guidelines; or

[2] A different grate, if each individual clear space in that grate has an area of no more than seven (7.0) square inches, or is no greater than 0.5 inches across the smallest dimension.

Examples of grates subject to this standard include grates in grate inlets, the grate portion (non-curb-opening portion) of combination inlets, grates on storm sewer manholes, ditch grates, trench grates, and grates of spacer bars in slotted drains. Examples of ground surfaces include surfaces of roads

(including bridges), driveways, parking areas, bikeways, plazas, sidewalks, lawns, fields, open channels, and stormwater system floors used to collect stormwater from the surface into a storm drain or surface water body.

[3] For curb-opening inlets, including curb-opening inlets in combination inlets, the clear space in that curb opening, or each individual clear space if the curb opening has two or more clear spaces, shall have an area of no more than seven (7.0) square inches, or be no greater than two (2.0) inches across the smallest dimension.

(b) The standard in (a) above does not apply:

[1] Where each individual clear space in the curb opening in existing curb-opening inlet does not have an area of more than nine (9.0) square inches;

[2] Where the municipality agrees that the standards would cause inadequate hydraulic performance that could not practicably be overcome by using additional or larger storm drain inlets;

[3] Where flows from the water quality design storm as specified in N.J.A.C. 7:8 are conveyed through any device (e.g., end of pipe netting facility, manufactured treatment device, or a catch basin hood) that is designed, at a minimum, to prevent delivery of all solid and floatable materials that could not pass through one of the following:

[a] A rectangular space four and five-eighths (4.625) inches long and one and one-half (1.5) inches wide (this option does not apply for outfall netting facilities); or

[b] A bar screen having a bar spacing of 0.5 inches.

Note that these exemptions do not authorize any infringement of requirements in the Residential Site Improvement Standards for bicycle safe grates in new residential development (N.J.A.C. 5:21-4.18(b)2 and 7.4(b)1).

[4] Where flows are conveyed through a trash rack that has parallel bars with one-inch (1 inch) spacing between the

bars, to the elevation of the Water Quality Design Storm as specified in N.J.A.C. 7:8; or

- [5] Where the New Jersey Department of Environmental Protection determines, pursuant to the New Jersey Register of Historic Places Rules at N.J.A.C. 7:4-7.2(c), that action to meet this standard is an undertaking that constitutes an encroachment or will damage or destroy the New Jersey Register listed historic property.

§ 220-153 Sources for technical guidance for stormwater management.

A. Technical guidance for stormwater management measures can be found in the documents listed below, which are available to download from the Department's website at: <https://dep.nj.gov/stormwater/bmp-manual/>.

- (1) Guidelines for stormwater management measures are contained in the New Jersey Stormwater Best Management Practices Manual, as amended and supplemented. Information is provided on stormwater management measures such as, but not limited to, those listed in Tables 1, 2, and 3.
- (2) Additional maintenance guidance is available on the Department's website at: <https://dep.nj.gov/stormwater/maintenance-guidance/> or can be obtained from the following:
 - (a) The Standards for Soil Erosion and Sediment Control in New Jersey, promulgated by the State Soil Conservation Committee and incorporated into N.J.A.C. 2:90. Copies of these standards may be obtained by contacting the State Soil Conservation Committee or any of the Soil Conservation Districts listed in N.J.A.C. 2:90-1.3(a)4. The location, address, and telephone number of each Soil Conservation District may be obtained from the State Soil Conservation Committee, P.O. Box 330, Trenton, New Jersey 08625; (609) 292-5540;
 - (b) The Rutgers Cooperative Extension Service, 732-932-9306; and
 - (c) The Soil Conservation Districts listed in N.J.A.C. 2:90-1.3(a)4. The location, address, and telephone number of each Soil Conservation District may be obtained from the State Soil Conservation Committee, P.O. Box 330, Trenton, New Jersey 08625; (609) 292-5540

- B. Submissions required for review by the Department should be mailed to:

The Division of Watershed Protection and Restoration, New Jersey Department of Environmental Protection, Mail Code 501-02A, PO Box 420, Trenton, New Jersey 08625-0420.

§ 220-154 Safety standards for stormwater management basins.

- A. This section sets forth requirements to protect public safety through the proper design and operation of stormwater management basins. This section applies to any new stormwater management basin. The provisions of this section are not intended to preempt more stringent municipal or county safety requirements for new or existing stormwater management BMPs. Marlboro Township and Monmouth County stormwater management plans and ordinances may, pursuant to their authority, require existing stormwater management BMPs to be retrofitted to meet one or more of the safety standards in § 220-154B(1), (2) and (3) for trash racks, overflow grates, and escape provisions at outlet structures.

- B. Requirements for trash racks, overflow grates and escape provisions.

(1) A trash rack is a device designed to catch trash and debris and prevent the clogging of outlet structures. Trash racks shall be installed at the intake to the outlet from the stormwater management BMPs to ensure proper functioning of the basin outlets in accordance with the following:

(a) The trash rack shall have parallel bars, with no greater than six-inch spacing between the bars.

(b) The trash rack shall be designed so as not to adversely affect the hydraulic performance of the outlet pipe or structure.

(c) The average velocity of flow through a clean trash rack is not to exceed 2.5 feet per second under the full range of stage and discharge. Velocity is to be computed on the basis of the net area of opening through the rack.

(d) The trash rack shall be constructed and installed to be rigid, durable, and corrosion resistant, and shall be designed to withstand a perpendicular live loading of 300 pounds per square foot.

(2) An overflow grate is designed to prevent obstruction of the overflow structure. If an outlet structure has an overflow grate, such grate shall meet the following requirements:

(a) The overflow grate shall be secured to the outlet structure but removable for emergencies and maintenance.

(b) The overflow grate spacing shall be no greater than two inches across the smallest dimension.

(c) The overflow grate shall be constructed and installed to be rigid, durable, and corrosion resistant, and shall be designed to withstand a perpendicular live loading of 300 pounds per square foot.

(3) Stormwater management BMPs shall include escape provisions as follows:

(a) If a stormwater management BMP has an outlet structure, escape provisions shall be incorporated in or on the structure. Escape provisions include the installation of permanent ladders, steps, rungs, or other features that provide easily accessible means of egress from stormwater management BMPs. With the prior approval of the municipality pursuant to Subsection B, a free-standing outlet structure may be exempted from this requirement;

(b) Safety ledges shall be constructed on the slopes of all new stormwater management BMPs having a permanent pool of water deeper than two and one-half feet. Safety ledges shall be comprised of two steps. Each step shall be four to six feet in width. One step shall be located approximately two and one-half feet below the permanent water surface, and the second step shall be located one to one and one-half feet above the permanent water surface. See Subsection D for an illustration of safety ledges in a stormwater management BMP; and

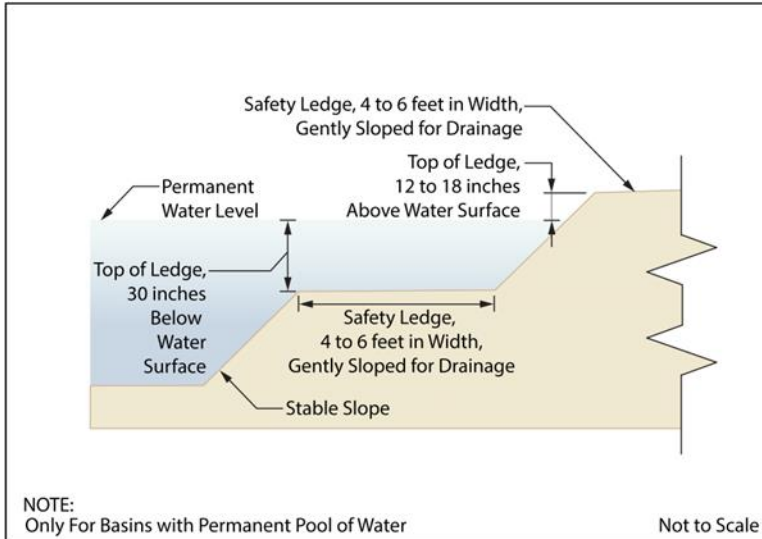
(c) In new stormwater management BMPs, the maximum interior slope for an earthen dam, embankment, or berm shall not be steeper than three horizontal to one vertical.

C. Variance or exemption from safety standards. A variance or exemption from the safety standards for stormwater management basins may be granted only upon a written finding by the appropriate reviewing agency, the Township of Marlboro, the

County of Monmouth or the Department that the variance or exemption will not constitute a threat to public safety.

D. Illustration of safety ledges in a new stormwater management basin.

Elevation view -Basin Safety Ledge Configuration



§ 220-155 Site development stormwater plan.

A. Submission of site development stormwater plan.

(1) Whenever an applicant seeks municipal approval of a development subject to

§§ 220-147 through 220-158, the applicant shall submit all of the required components of the checklist for the site development stormwater plan at Subsection C below as part of the submission of the applicant's application for subdivision or site plan approval.

(2) The applicant shall demonstrate that the project meets the standards set forth in §§ 220-147 through 220-158.

(3) The applicant shall submit 15 copies of the materials listed in the checklist for site development stormwater plans in accordance with Subsection C.

B. Site development stormwater plan approval. The applicant's site development project shall be reviewed as a part of the subdivision or site plan review process by the municipal board

or official from which municipal approval is sought. That municipal board or official shall consult the engineer retained by the Planning and/ or Zoning Board (as appropriate) to determine if all of the checklist requirements have been satisfied and to determine if the project meets the standards set forth in §§ 220-147 through 220-158.

C. Checklist requirements. The following information shall be required:

- (1) Topographic base map. The Township Engineer may require upstream tributary drainage system information as necessary. It is recommended that the topographic base map of the site be submitted which extends a minimum of 200 feet beyond the limits of the proposed development, at a scale of one inch equals 200 feet or greater, showing two-foot contour intervals. The map as appropriate may indicate the following: existing surface water drainage, shorelines, steep slopes, soils, erodible soils, perennial or intermittent streams that drain into or upstream of the Category One waters, wetlands and floodplains along with their appropriate buffer strips, marshlands and other wetlands, pervious or vegetative surfaces, existing man-made structures, roads, bearing and distances of property lines, and significant natural and man-made features not otherwise shown.
- (2) Environmental site analysis: a written and graphic description of the natural and man-made features of the site and its environs. This description should include a discussion of soil conditions, slopes, wetlands, waterways and vegetation on the site. Particular attention should be given to unique, unusual, or environmentally sensitive features and to those that provide particular opportunities or constraints for development.
- (3) Project description and site plan(s): a map (or maps) at the scale of the topographical base map indicating the location of existing and proposed buildings, roads, parking areas, utilities, structural facilities for stormwater management and sediment control, and other permanent structures. The map(s) shall also clearly show areas where alterations occur in the natural terrain and cover, including lawns and other landscaping, and seasonal high groundwater elevations. A written description of the site plan and justification of proposed changes in natural conditions may also be provided.

- (4) Land use planning and source control plan. This plan shall provide a demonstration of how the goals and standards of §§ 220-149 through 220-152 are being met. The focus of this plan shall be to describe how the site is being developed to meet the objective of controlling groundwater recharge, stormwater quality and stormwater quantity problems at the source by land management and source controls whenever possible.
- (5) Stormwater management facilities map. The following information, illustrated on a map of the same scale as the topographic base map, shall be included:
 - (a) Total area to be disturbed, paved or built upon, proposed surface contours, land area to be occupied by the stormwater management facilities and the type of vegetation thereon, and details of the proposed plan to control and dispose of stormwater.
 - (b) Details of all stormwater management facility designs, during and after construction, including discharge provisions, discharge capacity for each outlet at different levels of detention and emergency spillway provisions with maximum discharge capacity of each spillway.
- (6) Calculations.
 - (a) Comprehensive hydrologic and hydraulic design calculations for the predevelopment and post development conditions for the design storms specified in § 220-150.
 - (b) When the proposed stormwater management control measures (e.g., infiltration basins) depend on the hydrologic properties of soils, or require certain separation from the seasonal high water table, then a soils report shall be submitted. The soils report shall be based on on-site boring logs or soil pit profiles. The number and location of required soil borings or soil pits shall be determined based on what is needed to determine the suitability and distribution of soils present at the location of the control measure.
- (7) Maintenance and repair plan. The design and planning of the stormwater management facility shall meet the maintenance requirements of § 220-156.
- (8) Waiver from submission requirements. The Township Engineer

or, if applicable, Board Engineer in consultation with the Township Engineer, may waive submission of any of the requirements in Subsection C(1) through (6) when it can be demonstrated that the information requested is impossible to obtain or it would create a hardship on the applicant to obtain and its absence will not materially affect the review process.

§ 220-156 Maintenance and repair or stormwater management measures.

A. Applicability. Projects subject to review as in § 220-147C shall comply with the requirements of Subsections B and C.

B. General maintenance.

- (1) The design engineer shall prepare a maintenance plan for the stormwater management measures incorporated into the design of a major development.
- (2) The maintenance plan shall contain specific preventative maintenance tasks and schedules; cost estimates, including estimated cost of sediment, debris, or trash removal; and the name, address, and telephone number of the person or persons responsible for preventative and corrective maintenance (including replacement). The plan shall contain information on the BMP location, design, ownership, maintenance tasks and frequencies, and other details as specified in Chapter 8 of the NJ BMP Manual, as well as the tasks specific to the type of BMP, as described in the applicable chapter containing design specifics.
- (3) If the maintenance plan identifies a person other than the developer (for example, a public agency or homeowners' association) as having the responsibility for maintenance, the plan shall include documentation of such person's agreement to assume this responsibility, or of the developer's obligation to dedicate a stormwater-management facility to such person under an applicable ordinance or regulation.
- (4) Responsibility for maintenance shall not be assigned or transferred to the owner or tenant of an individual property in a residential development or project, unless such owner or tenant owns or leases the entire residential development or project. The individual property owner may be assigned incidental tasks, such as weeding of a green infrastructure BMP, provided the individual agrees to assume these tasks; however, the individual cannot be legally responsible for

all of the maintenance required.

- (5) If the person responsible for maintenance identified under Subsection B(2) above is not a public agency, the maintenance plan and any future revisions based on Subsection B(7) below shall be recorded upon the deed of record for each property on which the maintenance described in the maintenance plan must be undertaken.
- (6) Preventative and corrective maintenance shall be performed to maintain the functional parameters (storage volume, infiltration rates, inflow/outflow capacity, etc.) of the stormwater management measure, including, but not limited to, repairs or replacement to the structure; removal of sediment, debris, or trash; restoration of eroded areas; snow and ice removal; fence repair or replacement; restoration of vegetation; and repair or replacement of nonvegetated linings.
- (7) The person responsible for maintenance identified under Subsection B(2) above shall perform all of the following requirements:
 - (a) Maintain a detailed log of all preventative and corrective maintenance for the structural stormwater management measures incorporated into the design of the development, including a record of all inspections and copies of all maintenance-related work orders;
 - (b) Evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as needed; and
 - (c) Retain and make available, upon request by any public entity with administrative, health, environmental, or safety authority over the site, the maintenance plan and the documentation required by Subsection B(6) and (7) above.
- (8) The requirements of Subsection B(3) and (4) do not apply to stormwater management facilities that are dedicated to and accepted by the municipality or another governmental agency, subject to all applicable municipal stormwater general permit conditions, as issued by the Department.
- (9) In the event that the stormwater management facility becomes a danger to public safety or public health, or if it is in need of maintenance or repair, the municipality shall so

notify the responsible person in writing. Upon receipt of that notice, the responsible person shall have 14 days to effect maintenance and repair of the facility in a manner that is approved by the municipal engineer or his designee. The municipality, in its discretion, may extend the time allowed for effecting maintenance and repair for good cause. If the responsible person fails or refuses to perform such maintenance and repair, the municipality or county may immediately proceed to do so and shall bill the cost thereof to the responsible person.

- C. Nothing in this section shall preclude the municipality in which the major development is located from requiring the posting of a performance or maintenance guarantee in accordance with N.J.S.A. 40:55D-53.

§ 220-157 Violations and penalties related to stormwater management.

Any person who erects, constructs, alters, repairs, converts, maintains, or uses any building, structure or land in violation of §§ 220-147 through 220-158 shall be subject to the following penalties. Failure to comply with any provisions of these sections shall be considered a violation of the Coded Ordinances of the Township of Marlboro and shall be punishable by a fine of \$1,000 or 90 days in jail, or both. Each day of such violation's continuance shall be considered as a separate offense and shall be separately punishable. These penalties shall not be the exclusive remedy available, and nothing in §§ 220-147 through 220-158 shall prevent an applicant from obtaining injunctive relief.

§ 220-158 Mitigation plan for stormwater management.

A. Standards

- (1) For the purposes of this section, "mitigation" shall incorporate the definition set forth in § 220-148 and shall include situations where the applicant has demonstrated the inability or impracticality of strict compliance with the stormwater management requirements set forth in N.J.A.C 7:8 in addition to the requirements set forth in §§ 220-147 through 220-158.
- (2) The Township of Marlboro having jurisdiction over an application requiring a stormwater management plan shall have the jurisdiction to grant a waiver from strict compliance with the performance requirements of §§ 220-147 through 220-158 or the stormwater management plan. Pursuant

to N.J.A.C. 7:8-4.6(a)1 page 28, the waiver may be granted where an applicant has demonstrated that it is technically impracticable to meet any one or more of the design and performance standards on-site. For the purposes of this analysis, technical impracticability exists only when the design and performance standard cannot be met for engineering, environmental, or safety reasons. The granting of the waiver shall apply to an individual drainage area and design and performance standard and shall not apply to an entire site or project, unless an applicant provides the required analysis for each drainage area within the site and each design and performance standard. The applicant must demonstrate one of the following:

- (a) An inability to apply any of the best management practices and methodologies as defined and approved herein and in the stormwater management plan, due to an extraordinary and exceptional situation uniquely affecting the subject property or structures thereon, resulting in a peculiar and exceptional practical difficulty or undue hardship; or
 - (b) That the purposes of §§ 220-147 through 220-158 and stormwater management plan can be advanced by a deviation from the best management practices and methodologies as defined and approved herein and in the stormwater management plan, where the benefits of such deviation substantially outweigh any detriment.
- (3) In requesting a waiver as to any application, the applicant may submit as reasons for the waiver the site conditions of the proposed project, including soils types; thin soil cover; low permeability soils, and/or shallow depths to groundwater (high groundwater levels), unique conditions which would create an unsafe design, or conditions which would provide a detrimental impact to public health, welfare, or safety.
 - (4) The waiver cannot be granted due to conditions created by the applicant. If the applicant can comply with the requirements of §§ 220-147 through 220-158 and stormwater management plan through reducing the size of a project, the hardship is self-imposed, and therefore the Board lacks jurisdiction to grant any waiver under this section.
 - (5) The applicant must propose a suitable mitigation method through the submission of a mitigation plan which will conform to the design and performance standards of §§ 220-

147 through 220-158, through green infrastructure stormwater management measures, governing stormwater quality, quantity, and groundwater recharge. Approval of a waiver or exemption from any one of the three stormwater design standard criteria which include groundwater recharge, water quality, and water quantity provides no guarantee that, if requested, an exemption or waiver will be granted for either or both of the remaining criteria.

(6) Supporting evidence for an exemption or waiver shall be prepared in the form of a stormwater management report which will be signed and sealed by a New Jersey licensed professional engineer. The report shall include at a minimum:

(a) Detailed hydrologic and hydraulic calculations identifying the sizing criteria for each BMP and the stormwater collection system based upon the anticipated peak flow and/or volume.

(b) A map of the planned project showing existing conditions with drainage boundaries and land features, including delineated wetlands, proposed improvements, including all BMPs, grading, utilities, impervious features, and landscaping.

(c) Construction details for each BMP with appropriate contact information.

B. Mitigation criteria. The mitigation requirements listed below offer a hierarchy of options that are intended to offset the effect on groundwater recharge, stormwater quantity control, and/or stormwater quality control to an equal or greater extent than was created by the granting of a waiver or exemption from the stormwater management requirements. The mitigation project shall be approved no later than preliminary or final site plan approval of the major development and shall comply with the green infrastructure standards at N.J.A.C. 7:8-5.3. The mitigation criteria are listed below in order of preference:

(1) Identify, design, and implement a compensating measure to mitigate impacts for a project that is located in the same HUC 14 drainage area as the major development subject to the waiver. In these cases, the applicant will address the same issue within the design and performance standards for which the variance or exemption is being sought, and demonstrate that the proposed mitigating measures provide equal or greater compensation to offset the noncomplying

aspect of the stormwater management system on site. The developer must also ensure the long-term maintenance of the project as outlined in Chapters 8 and 9 of the NJDEP Stormwater BMP Manual. If the Township agrees to control a new stormwater management facility, arrangement in the form of an escrow account will be made to stipulate the payment amount, schedule, and long-term responsibilities of the facility to ensure that it functions to capacity.

- (2) Complete a project identified by the municipality as equivalent to the environmental impact created by the exemption or variance.
 - (a) If these criteria cannot be met on site, the Township has identified the retrofitting of existing basins as the primary mode for mitigation measures to follow. Through clearing sediment, expanding capacity, or bringing the basin into compliance with water quality standards, mitigation opportunities have the potential to significantly improve stormwater management issues that face Marlboro Township.
 - (b) As many of the developments in Marlboro were constructed with curb and gutter drainage, stormwater is often funneled and released directly into an adjoining water body. As these methods are contrary to the stormwater management BMPs outlined in the NJDEP's BMP Manual and endorsed through the adoption of the state's new stormwater regulations, the retrofitting of these basins can dramatically improve the Township's existing stormwater management infrastructure. Mitigation projects can utilize a number of BMPs to offset the stormwater management of a project that is unable to comply with the new design standards. However, these BMPs, which may include sand filters, vegetative filters, or the incorporation of a manufactured treatment device, among other possibilities, will be engineered and applied on a site-by-site basis. In general, the engineering necessary to determine the mitigative measure that is most suited for a particular basin is the responsibility of the applicant, and must be determined and submitted by the applicant along with the particular project's site plan. Marlboro has identified locations within the Deep Run watershed where BMPs can be utilized to improve stormwater management and reduce flooding. These locations, which have been identified by catchment area, offer developers specific options such as improving culverts, or upgrading

infrastructure to use as mitigative alternatives. Applicants that are seeking waivers for development proposals located within the Deep Run watershed are strongly encouraged to reference the 10 Subwatershed Impact Assessment and Implementation Project Summary Tables that are included within the Identification and Evaluation of Impairments Within the Deep Run Watershed Report. Copies of the aforementioned report are available at the Township Clerk's office.

- (3) Provide funding for municipal projects that would address existing stormwater impacts. The third and least preferable stormwater mitigation option is for the applicant to provide funding or partial funding for an environmental enhancement project that has been identified in the municipal stormwater management plan, or towards the development of a regional stormwater management plan. The contributed funds must be equal or greater than the cost to implement the required on-site stormwater measure for which relief is requested including the cost of land, easements, engineering design, and long-term maintenance. However, with this option, Marlboro Township, not the applicant, is ultimately responsible for the design, property acquisition, construction, construction management, maintenance (short-term and long-term) and follow-up study, unless that project and its prospective costs have been outlined within this mitigation plan. An applicant may also propose a mitigation project on a site that has not been identified in this mitigation plan. However, in each circumstance the selection of a mitigation project must incorporate the following requirements:
 - (a) The project must be within the same area that would contribute to the receptor impacted by that project.
 - (b) Legal authorization must be obtained to construct the project at the location selected. This includes the maintenance and any access needs for the project throughout its operation.
 - (c) The mitigation project should be located close to the original development project. If possible, the mitigation project should be located at a similar distance from the identified sensitive receptor. This distance should not be based on actual location, but on a similar hydraulic distance to the sensitive receptor. For example, if a project for which a waiver is obtained discharges to a tributary, but the closest location

discharges to the main branch of a waterway, it may be more beneficial to identify a location discharging to the same tributary.

- (d) It is preferable to have one location that addresses any and all of the performance standards waived, rather than one location for each performance standard.
- (e) The project location must demonstrate no adverse impacts to other properties.
- (f) Pursuant to N.J.A.C. 7:8-4.6(a)1 page 29, mitigation projects that address green infrastructure standards must use green infrastructure BMPs in Table 1, and/or an alternative stormwater management measure approved in accordance with § 220-150G that meets the definition of green infrastructure to manage an equivalent or greater area of impervious surface and an equivalent or greater area of motor vehicle surface as the area of the major development subject to the waiver. Grass swales and vegetative filter strips may only be used in the mitigation project if the proposed project additionally includes a green infrastructure BMP other than a grass swale or vegetative filter strip. The green infrastructure used in the mitigation project must be sized to manage the water quality design storm, as defined at § 220-150P(4) at a minimum, and is subject to the applicable contributory drainage area limitation specified at § 220-150G or § 220-1500(2) as applicable.
- (g) For projects addressing the groundwater recharge performance standard, a mitigation project site upstream of the location of the actual project site is preferable to a downstream location. Additionally, one of the following must be satisfied:

[1] Pursuant to N.J.A.C. 7:8-4.6(a)1 page 29, the average annual groundwater recharge provided by the mitigation project must equal or exceed the average annual groundwater recharge deficit resulting from granting the waiver for the major development; or

[2] Pursuant to N.J.A.C. 7:8-4.6(a)1 page 29, runoff infiltrated during the two-year storm from the mitigation project must equal or exceed the deficit resulting from granting the waiver from the required infiltration of the increase in runoff volume from preconstruction to post-construction from the major

development.

(h) Mitigation projects that address stormwater runoff quantity must satisfy the following:

[1] Pursuant to N.J.A.C. 7:8-4.6(a)1 page 30, the applicant demonstrates, through hydrologic and hydraulic analysis, including the effects of the mitigation project, that the waiver will not result in increased flooding damage below each point of discharge of the major development;

[2] Pursuant to N.J.A.C. 7:8-4.6(a)1 page 30, the mitigation project discharges to the same watercourse and is located upstream of the major development subject to the waiver; and

[3] Pursuant to N.J.A.C. 7:8-4.6(a)1 page 30, the mitigation project provides peak flow rate attenuation in accordance with N.J.A.C. 7:8-5.6(b)3 for an equivalent or greater area than the area of the major development subject to the waiver. For the purposes of this demonstration, equivalent includes both size of the area and percentage of impervious surface and/or motor vehicle surface.

(i) Mitigation projects that address stormwater runoff quality must satisfy the following:

[1] Pursuant to N.J.A.C. 7:8-4.6(a)1 page 29, the total drainage area of motor vehicle surface managed by the mitigation project(s) must equal or exceed the drainage area of the area of the major development subject to the waiver and must provide sufficient TSS removal to equal or exceed the deficit resulting from granting the waiver for the major development; and

[2] Pursuant to N.J.A.C. 7:8-4.6(a)1 page 29, the mitigation project must remove nutrients to the maximum extent feasible in accordance with N.J.A.C. 7:8-5.5(f).

C. Requirements for mitigation projects.

(1) Whether the applicant is proposing the mitigation project, or Marlboro has identified the project within this mitigation plan, the following requirements for mitigation

must be included in the project submission:

- (a) Impact from noncompliance. The applicant must provide a table to show the required values, and the values provided in the project, and include an alternatives analysis that demonstrates that on-site compliance was maximized to the greatest extent practicable.
- (b) Narrative and supporting information regarding the need for the waiver. The waiver cannot be granted for a condition that was created by the applicant. If the applicant can provide compliance with the stormwater rules through a reduction in the scope of the project, the applicant has created the condition and a waiver cannot be issued. The applicant must provide a discussion and supporting information of the site conditions that would not allow the construction of a stormwater management facility to provide compliance with these requirements, and/or if the denial of the application would impose an extraordinary hardship on the applicant brought about by circumstances peculiar to the subject property. The site conditions to be considered are soil type, the presence of karst geology, acid soils, a high groundwater table, unique conditions that would create an unsafe design, as well as conditions that may provide a detrimental impact to public health, welfare, and safety.
- (c) Sensitive receptor: identify the sensitive receptor related to the performance standard for which a waiver is sought. Demonstrate that the mitigation site contributes to the same sensitive receptor.
- (d) Design of the mitigation project: provide the design details of the mitigation project. This includes, but is not limited to, drawings, calculations, and other information needed to evaluate the mitigation project.
- (e) Responsible party. The mitigation project submission must list the party or parties responsible for the construction or maintenance of the mitigation project. Documentation must be provided to demonstrate that the responsible party is aware of, has authority to perform, and accepts the responsibility for the construction and the maintenance of the mitigation project. Under no circumstances shall the responsible party be an individual single-family homeowner.

- (f) Maintenance. The applicant must include a maintenance plan that addresses the maintenance criteria at N.J.A.C. 7:8-5 as part of a mitigation plan. In addition, if the maintenance responsibility is being transferred to Marlboro Township, or another entity, the entity responsible for the cost of the maintenance must be identified. Marlboro provides applicants with the option of conveying the mitigation project to the Township, provided that the applicant funds the cost of maintenance of the facility in perpetuity.
 - (g) Permits. The applicant is solely responsible to obtain any and all necessary local, state, or other applicable permits for the identified mitigation project or measure. The applicable permits must be obtained prior to the municipal approval of the project for which the mitigation is being sought.
 - (h) Construction. The applicant must demonstrate that the construction of the mitigation project will be completed prior to, or concurrently with, the major development project. A certificate of occupancy or final approval by the municipality for the application permit cannot be issued until the mitigation project or measure receives final approval. Any mitigation projects proposed by the municipality to offset the stormwater impacts of the Township's own projects must be completed within six months of the completion of the municipal project, in order to remain in compliance with Marlboro's NJPDES general permit.
- (2) In all instances the Township of Marlboro having jurisdiction over the application shall have the power to impose additional conditions as may be appropriate under the circumstances of the application. The Township of Marlboro shall make specific findings of fact and conclusions consistent with § 220-147 showing the inability or impracticality of strict compliance with §§ 220-147 through 220-158 and the stormwater management plan and justifying the approval of the applicant's mitigation plan, in order to satisfy the reporting requirements of the municipality's NJPDES permit and other applicable state law requiring the submission of reports to any state or county review agency. The Township of Marlboro shall also have the power to require mitigation as to applications which have received waivers from the New Jersey Department of Environmental Protection.

INTRODUCED: JULY 18, 2024

ADOPTED: AUGUST 15, 2024

SUSAN A. BRANAGAN,
MUNICIPAL CLERK

Dated: August 15, 2024

JONATHAN L. HORNIK,
MAYOR

Dated: August 15, 2024